RESTRICTED CIRCULATION

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Agricultural Memorandum No 581

Tick Incidence - influence of previous year L P Smith & J Cochrane

Ag Mem 578 discussed the influence of the previous season on disease counts. The analysis was repeated regarding the previous year.

Influence of Spring totals on succeeding Spring totals

Total correlations

Spring	on previous Autumn	+0.4342
	on May maxima	+0.4584
	on previous Spring	-0.0134
Previous autumn	on previous Spring	+0.0393
	on May maxima	-0.3710
Previous Spring	on May maxima	-0.1214

giving partial correlations:-

Spring on previous Autumn, (previous Spring & May max constant)

0.7333

Spring on May maxima, (previous Spring & Autumn constant)

0.7420

Spring on previous Spring (previous Autumn & May max constant)

0.0770

Thus the previous Spring appears to have no effect on the next Spring total.

Influence of Autumn totals on succeeding Autumn total

Total correlations

Autumn	on previous Spring	+0.2659
	on previous Autumn	+0.2293
	on June-July maxima	+0.5215
Previous Spring	on previous Autumn	+0.4342
	on June-July maxima	-0.2987
Previous Autumn	on June-July maxima	-0.5348

FHI

giving partial correlations:-

Autumn Total on previous Spring	0.4167
on previous Autumn	0.6572
on June July maxima	0.8177

This suggests that the totals (A) in Autumn the previous year do have a significant effect as well as Spring totals (S) and Summer temperatures (T).

A triple regression would be

$$\text{Autumn Total} = 44.2T+0.69A+0.44S-1753$$

These figures do not correspond with the first part of Ag Mem 578 which used one extra year.

Any comments or suggestions on this paper should be referred to the author.

Meteorological Office
Bracknell

November 1973

Appendix

Year	Spring Total	Previous Autumn	Previous Spring	May Max	Autumn Total	Previous Spring	Previous Autumn	June-July Max
1956	316	332	197	17.7	321	316	332	38.3
1957	240	321	316	15.6	438	240	321	42.1
1958	216	438	240	15.0	260	216	438	37.5
1959	189	260	216	17.1	329	189	260	41.6
1960	295	329	189	17.0	324	295	329	40.3
1961	216	324	295	16.1	461	216	324	40.8
1962	230	461	216	13.8	341	230	461	37.8
1963	234	341	230	15.0	323	234	341	37.9
1964	274	323	234	16.3	329	274	323	39.2
1965	270	329	274	15.1	207	270	329	36.7
1966	152	209	270	15.4	240	152	209	39.8
1967	152	240	152	14.8	191	152	240	40.0